Claims

1. A vaccine for suppressing a TH2 response and for inducing a cell mediated immune response comprising a TH1 response in an individual having a TH2/TH1 imbalance, the vaccine comprising: an immunotherapeutic composition for effecting B cell depletion; and tumor-associated antigen capable of inducing a cell mediated immune response comprising a TH1 response.

2. The vaccine according to claim 1, further comprising a component selected from the group consisting of an immunomodulator for inducing a cell mediated immune response comprising a TH1 response, a pharmaceutically acceptable carrier, and a combination thereof.

3. The vaccine according to claim 1, wherein the immunotherapeutic composition is contained in a solid phase implant for delivery of the immunotherapeutic composition.

4. The vaccine according to claim 1, wherein the immunotherapeutic composition further comprises an anti-B cell agent.

5. The vaccine according to claim 1, wherein the immunotherapeutic composition comprises an affinity ligand having binding specificity for a determinant selected from the group consisting of CD19, CD20, CD21, CD22 (also known as LL2), CDIM, and Lym-1.

6. The vaccine according to claim 1, wherein the immunotherapeutic composition comprises cobra venom factor.

7. The vaccine according to claim 1, wherein the TH2/TH1 imbalance is mediated by a disease process comprising a pro-tumor immune response.

8. The vaccine according to claim 1, wherein the TH2/TH1 imbalance is mediated by a disease process comprising a pro-tumor immune response and solid nonlymphoid tumor.

9. A vaccine useful for the treatment or prevention of solid nonlymphoid tumor in an individual, the vaccine comprising: an immunotherapeutic composition for effecting B

cell depletion; and tumor-associated antigen capable of inducing a cell mediated immune response comprising a TH1 response.

10. The vaccine according to claim 9, further comprising a component selected from the group consisting of an immunomodulator for inducing a cell mediated immune response comprising a TH1 response, a pharmaceutically acceptable carrier, and a combination thereof.

11. The vaccine according to claim 9, wherein the immunotherapeutic composition further comprises an anti-B cell agent.

12. The vaccine according to claim 9, wherein the immunotherapeutic composition comprises an affinity ligand having binding specificity for a determinant selected from the group consisting of CD19, CD20, CD21, CD22 (also known as LL2), CDIM, and Lym-1.

13. The vaccine according to claim 9, wherein the immunotherapeutic composition comprises cobra venom factor.

14. A composition comprising micelles comprised of tumor-associated antigen, wherein the composition is substantially free of solubilizing agents, wherein the composition is substantially free of oil, wherein the tumor-associated antigen comprises tumor cells lysed by a freeze-thaw process, and wherein the composition further comprises a pharmaceutically acceptable carrier.

15. The composition according to claim 14, wherein the composition comprises micelles of tumor-associated antigen, wherein the micelles comprise diameters that range from about 0.5 microns in diameter to diameters smaller than 0.5 microns.

16. The composition according to claim 14, wherein the composition is capable of, inducing an immunologic cross-protection against solid nonlymphoid tumors selected from the group consisting of solid nonlymphoid tumors of the same tissue but different origin than the solid nonlymphoid tumor from which the composition is produced, solid nonlymphoid tumors of different tissues than the solid nonlymphoid tumor from which the composition is produced, and a combination thereof.

17. A method for immunotherapy of a TH2/TH1 imbalance in an individual comprising administering to the individual a vaccine in an amount effective to reduce a TH2 response, and in an amount effective to induce a cell mediated immune response comprising a TH1 response against solid nonlymphoid tumor, wherein the vaccine comprises:

an immunotherapeutic composition for effecting B cell depletion; and

tumor-associated antigen capable of inducing a cell mediated immune response comprising a TH1 response;

wherein the TH2/TH1 imbalance is mediated by a disease process selected from the group consisting of a pro-tumor immune response, solid nonlymphoid tumor, and a combination thereof.

18. The method according to claim 17, wherein the vaccine is administered to the individual by administering a priming dose comprising the immunotherapeutic composition, and administering an immunizing dose comprising tumor-associated antigen.

19. The method according to claim 17, wherein the vaccine further comprises a component selected from the group consisting of an immunomodulator for inducing a TH1 response, a pharmaceutically acceptable carrier, and a combination thereof.

20. The method according to claim 17, wherein the immunotherapeutic composition further comprises an anti-B cell agent.

21. The method according to claim 17, wherein the immunotherapeutic composition comprises an affinity ligand having binding specificity for a determinant selected from the group consisting of CD19, CD20, CD21, CD22 (also known as LL2), CDIM, and Lym-1.

22. The method according to claim 17, wherein the TH2 response reduced comprises a humoral immune response against shed tumor antigen.

23. The method according to claim 17, wherein the cell mediated immune response induced comprises a TH1 response against tumor-associated antigen.

24. The method according to 17, wherein the immunotherapeutic composition of the vaccine is administered to the individual at a time selected from the group consisting of before tumor-associated antigen of the vaccine is administered to the individual, simultaneous with the administration of tumor-associated antigen of the vaccine to the individual, subsequent to administration of tumor-associated antigen of the vaccine to the individual, and a combination thereof.

25. The method according to 19, wherein the vaccine further comprises an immunomodulator, and the immunomodulator is administered to the individual at a time selected from the group consisting of before tumor-associated antigen of the vaccine is administered to the individual, simultaneous with the administration of tumor-associated antigen of the vaccine to the individual, subsequent to administration of tumor-associated antigen of the vaccine to the individual, and a combination thereof.

26. The method according to 17, wherein the vaccine is administered parenterally.

27. A method for immunotherapy of an individual for treatment or prevention of solid nonlymphoid tumor, the method comprising administering to the individual a vaccine in an amount effective to reduce a TH2 response, and in an amount effective to induce a cell mediated immune response against solid nonlymphoid tumor, wherein the vaccine comprises:

an immunotherapeutic composition for effecting B cell depletion; and

tumor-associated antigen capable of inducing a cell mediated immune response comprising an immune response selected from the group consisting of a TH1 response, a cytotoxic CD8+ T cell response, and a combination thereof.

28. The method according to claim 27, wherein the vaccine is administered to the individual by administering a priming dose comprising the immunotherapeutic composition, and administering an immunizing dose comprising tumor-associated antigen.

29. The method according to claim 27, wherein the vaccine further comprises a component selected from the group consisting of an immunomodulator, a pharmaceutically acceptable carrier, and a combination thereof.

30. The method according to claim 27, wherein the immunotherapeutic composition further comprises an anti-B cell agent.

31. The method according to claim 27, wherein the immunotherapeutic composition comprises an affinity ligand having binding specificity for a determinant selected from the group consisting of CD19, CD20, CD21, CD22 (also known as LL2), CDIM, and Lym-1.

32. The method according to claim 27, wherein the TH2 response reduced comprises a humoral immune response against shed tumor antigen.

33. The method according to claim 27, wherein the cell mediated immune response induced comprises a cell mediated immune response against tumor-associated antigen.

34. The method according to 27, wherein the immunotherapeutic composition of the vaccine is administered to the individual at a time selected from the group consisting of before tumor-associated antigen of the vaccine is administered to the individual, simultaneous with the administration of tumor-associated antigen of the vaccine to the individual, subsequent to administration of tumor-associated antigen of the vaccine to the individual, and a combination thereof.

35. The method according to 28, wherein the vaccine further comprises an immunomodulator, and the immunomodulator is administered to the individual at a time selected from the group consisting of before tumor-associated antigen of the vaccine is administered to the individual, simultaneous with the administration of tumor-associated antigen of the vaccine to the individual, subsequent to administration of tumor-associated antigen of the vaccine to the individual, and a combination thereof.

36. The method according to 27, wherein the vaccine is administered parenterally.

37. A method for immunotherapy of an individual for treatment or prevention of solid nonlymphoid tumor, the method comprising administering to the individual a vaccine comprising:

a priming dose comprised of a composition selected from the group consisting of an immunotherapeutic composition, anti-CD4 monoclonal antibody, and a combination thereof; and

an immunizing dose comprised of tumor-associated antigen capable of inducing a cell mediated immune response comprising an immune response selected from the group consisting of a TH1 response, a cytotoxic CD8+ T cell response, and a combination thereof.

38. The method according to claim 37, wherein the vaccine further comprises a component selected from the group consisting of an immunomodulator, a pharmaceutically acceptable carrier, and a combination thereof.

39. The method according to claim 37, wherein the priming dose is administered as a solid phase implant containing the composition comprising the priming dose for delivery to the individual.

40. The method according to claim 37, wherein the priming dose comprises a composition comprising an immunotherapeutic composition, and the immunotherapeutic composition comprises an affinity ligand having binding specificity for a determinant selected from the group consisting of CD19, CD20, CD21, CD22 (also known as LL2), CDIM, and Lym-1.

41. The method according to claim 37, wherein the immunizing dose is administered at a time following administration of the primary dose to the individual.

42. The method according to claim 37, wherein the priming dose comprises a composition comprising anti-CD4 monoclonal antibody, and wherein the immunizing dose induces a cell mediated immune response comprising a cytotoxic CD8+ T cell response.

43. A method of making the vaccine according to claim 1, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, in making the vaccine.

44. A method of making the vaccine according to claim 2, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with an immunomodulator in an amount effective for inducing a cell mediated immune response comprising a TH1 response, in making the vaccine.

45. A method of making the vaccine according to claim 2, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with a pharmaceutically acceptable carrier, in making the vaccine.

46. A method of making the vaccine according to claim 2, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with an immunomodulator in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with a pharmaceutically acceptable carrier, in making the vaccine.

47. A method of making the vaccine according to claim 9, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, in making the vaccine.

48. A method of making the vaccine according to claim 10, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated

immune response comprising a TH1 response, with an immunomodulator in an amount effective for inducing a cell mediated immune response comprising a TH1 response, in making the vaccine.

49. A method of making the vaccine according to claim 10, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with a pharmaceutically acceptable carrier, in making the vaccine.

50. A method of making the vaccine according to claim 10, the method comprising combining an immunotherapeutic composition, in an amount effective to deplete B cells, with tumor-associated antigen, in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with an immunomodulator in an amount effective for inducing a cell mediated immune response comprising a TH1 response, with a pharmaceutically acceptable carrier, in making the vaccine.

51. A method of making the composition according to 14, the method comprising:

(a) forming a pellet of tumor cells;

(b) exposing the pelleted tumor cells to a plurality of freeze/thaw cycles to disrupt the cells;

(c) resuspending the disrupted cells, and any whole cells that may still be present, in a pharmaceutically acceptable carrier in forming a suspension;

(d) filtering the suspension through a filter to remove any components greater than or equal to about 1 micron that may be present in forming a filtered tumor cell lysate; and

(e) extruding the filtered tumor cell lysate through a filter comprising pores of a size sufficient to induce formation of micelles in forming a composition comprising micelles comprised of tumor-associated antigen.

52. The method according to claim 51, wherein in forming a filtered tumor cell lysate, the suspension is passed through a first filter comprising pores of a size of greater than 1 micron but less than about 150 microns, and resultant filtrate is then flowed through a

second filter comprising pores of a size of about 1 micron in forming a filtered tumor cell lysate.

53. The method according to claim 52, wherein the first filter comprises pores of a size of about 100 microns.

54. The method according to claim 51, wherein the filtered tumor lysate is extruded through a filter comprising pores of a size in the range of from about 0. 2 microns to about 0.7 microns.

55. The method according to claim 51, wherein the filtered tumor lysate is extruded through a filter comprising pores of a size of about 0.5 microns.

56. The method according to claim 51, wherein the plurality of freeze/thaw cycles comprises a number of cycles in the range of from about 2 to about 10.

57. A method for priming the immune system of an individual, the method comprises:

administering to the individual a priming dose, wherein the priming dose comprises a composition selected from the group consisting of an immunotherapeutic composition, anti-CD4 monoclonal antibody, and a combination thereof;

wherein the priming dose is administered in an amount effective to modulate the individual's immune system to respond with induction of a cell mediated immune response upon administration of an immunizing dose of tumor-associated antigen to the individual.

58. The method according to claim 57, wherein the priming dose further comprises a component selected from the group consisting of an immunomodulator, a pharmaceutically acceptable carrier, and a combination thereof.

59. The method according to claim 57, wherein the priming dose is administered as a solid phase implant containing the composition comprising the priming dose for delivery to the individual.

60. The method according to claim 58, wherein the priming dose is administered as a solid phase implant.

61. The method according to claim 57, wherein the priming dose comprises a composition comprising an immunotherapeutic composition, and the immunotherapeutic composition comprises an affinity ligand having binding specificity for a determinant selected from the group consisting of CD19, CD20, CD21, CD22 (also known as LL2), CDIM, and Lym-1.

62. The method according to claim 57, wherein the priming dose comprises a composition comprising anti-CD4 monoclonal antibody, and wherein the priming dose modulates the individual's immune system to respond with induction of a cell mediated immune response comprising a cytotoxic CD8+ T cell response.

63. The method according to claim 58, wherein the priming dose comprises a composition comprising anti-CD4 monoclonal antibody and an immunomodulator, and wherein the priming dose modulates the individual's immune system to respond with induction of a cell mediated immune response comprising a cytotoxic CD8+ T cell response.

64. A vaccination kit comprising in separate containers:

(a) a priming dose comprising a composition selected from the group consisting of an immunotherapeutic composition, anti-CD4 monoclonal antibody, and a combination thereof; and

(b) an immunizing dose comprising tumor-associated antigen.

65. The vaccination kit according to claim 64, wherein the priming dose is contained in a sold phase implant for delivery of the composition comprising the priming dose over a desired period of time.

66. The vaccination kit according to claim 64, further comprising a component selected from the group consisting of an immunomodulator, a pharmaceutically acceptable carrier, and a combination thereof.

67. The vaccination kit according to claim 64, further comprising instructional material.

68. The vaccination kit according to claim 66, further comprising instructional material.